



Raising Replacement Pullets in New York

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Regular replacement of the laying flock is one of the important, and one of the more expensive, essentials of egg production. It ranks next to feed in the cost of egg production, and is greater than labor, housing, equipment, interest, taxes, and other costs. Almost always, replacements equal more than five cents for every dozen eggs produced, and often cost from eight to twelve cents per dozen.

The per dozen cost of replacement is dependent primarily on two factors: the original cost of the pullets when housed, and the number of eggs laid. The wisdom of the flockowner in managing his replacement program can influence both these factors, particularly the cost of the pullet.

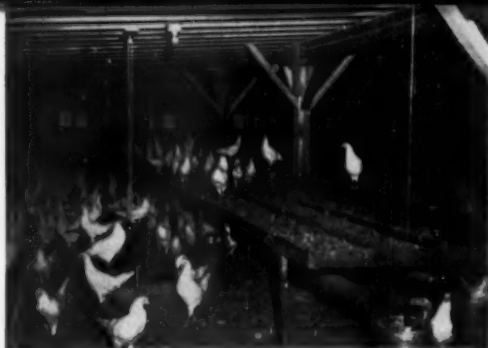
The poultryman may choose between growing his own pullets or purchasing started pullets. Purchasing started pullets usually increases replacement costs, although there may be reasons other than cost for choosing such a program. This material is written for the poultryman who raises his own pullets or for the grower who raises pullets for others. The important decisions are much the same for both.

General requirements for pullets

The growing pullet is remarkably flexible in its housing, feeding, and management requirements. Pullet flocks that have been badly abused, or poorly housed and fed, sometimes become satisfactory layers. The risks of neglect, however, are great. Too often the neglected flock becomes a diseased flock. Such a flock rarely recovers sufficiently to become profitable. Heavy mortality and unsatisfactory production are reflected in very high replacement costs per dozen eggs.

Usually it is wise to provide the pullet with levels of environment, feed, and general management considerably above minimum standards, but consistent with realistic cost considerations. This means housing that gives reasonable protection from heat and cold and provides good ventilation; it means adequate feed and water space and a fairly uncrowded floor space allotment; and it should include a ration formulated to develop and mature the pullet at a normal rate at low cost but with no elements of starvation. Pullets reared on such a program need not be high-cost pullets. In fact, one of the surest ways to keep

Fifteen-week-old pullets on a southeastern New York farm. Note mechanical feeder, automatic waterer suspended over wire frame, and hinged roosting platform over hot water brooding area.



replacement costs low is to eliminate most losses and grow a pullet capable of high production.

Housing requirements

Housing that is suitable for brooding chicks, or for housing a laying flock, also should be satisfactory for rearing pullets. When they are reared during fall or winter, insulation and controlled ventilation similar to that found in good brooding and laying quarters are assets in providing satisfactory environment. The use of pens in the laying house for rearing pullets is an increasingly common practice. So long as this does not involve contact with older birds, or with sources of infection from older birds, it is satisfactory. Effective isolation of growing stock from older birds is important for disease control, particularly during the early stages.

When pullets are reared in permanent quarters where they will remain as layers, the floor space allowance is not a problem. On many farms today, there is little difference in the allowance necessary for the growing pullet and the laying hen. One and one-half to two feet of floor space per bird should be provided when there is good control of the birds' environment. If pens are likely to be damp, or if ventilation is faulty as a result of poor insulation, allowances of two and one-half square feet or more may be necessary.

Feeders and waterers

From 20 to 30 feet of feeding space should be provided for every 100 growing pullets. As they reach maturity, the space should be increased to about 40 feet. If for any reason it is necessary for most of the birds to eat at one time, the upper range of this allowance will be needed. Specific waterer space, such as four to six feet of trough space per 100 pullets, is less important than a good distribution of waterers through the pens with a constant supply of fresh water. The principle applies to some degree with feeders. Both feeders and waterers should be located to permit birds in any part of the house to feed or drink conveniently, without having to find their way around barriers or to travel more than 15 feet.

Other equipment

Hoppers for grit are needed throughout the growing period, and, as the pullets near maturity, additional hoppers are needed for oyster shell or other calcium supplement.

Nesting equipment should be available by the time the pullets begin to lay. About one nest is needed for every five hens in the laying flock. Fewer are necessary if the pullets are moved from rearing quarters before production becomes heavy.

Roosts are not always used in pens where pullets are reared, but they are a desirable addition to the equipment. When used with enclosed pits, roosts aid in sanitation. Roosts also may add to the comfort of the birds in hot weather and help to establish desirable roosting habits for the laying period. Some observations suggest that flocks with good roosting habits are less likely to present severe problems of floor eggs.

Certain items of convenience or labor-saving equipment such as feed carts and other feed handling equipment, catching pen arrangements, catching hooks, and cleaning tools may be worthwhile either because they reduce labor costs or get work done better or easier.

In general, mechanization of pullet rearing in New York is incidental to equipment installed for egg production. Except for mechanical feeders and automatic waterers, little mechanization is found in pens used primarily for brooding and rearing pullets.

FEEDING

From 18 to 22 pounds of feed will be needed to grow a pullet to 22 weeks of age, depending on the amount of feed wasted, the energy level of the feed, and the body weight of the pullets.

Feed is the largest cost item in rearing pullets; a program that will involve no wasteful cost but will promote satisfactory growth is needed. For many poultrymen, this is likely to be a complete ration of medium to high energy, self-fed without waste and without restriction. For some a ration that can be fed with grain may be more economical.

Attempts to save by adding excessive amounts of grain or fiber to the ration, or by limiting the feed are likely to be self-defeating. The effects of such practices may not be immediately apparent. Unless careful records are kept, the poultryman may not realize that his pullets either are consuming extra feed or that they will consume more when given laying feeds later. Cornell research casts doubt on the economy of any attempt to save feed or to delay maturity through manipulation of the rations from normal good practice.



Pullet chicks in well-planned, comfortable housing, suitable for starting at any season.

Attempts to economize by carefully buying good rations, checking ingredients for least cost relationships, and eliminating as much waste as possible are not, of course, subject to doubt.

For more detailed information on feeding principles, nutritive requirements, and ration formulas ask your county agent for current Cornell recommendations for formulating poultry rations.

GENERAL MANAGEMENT OF THE PULLET FLOCK

Even the well-housed, properly-equipped, and well-fed poultry flock can be a disappointment if general principles of good management are not observed.

Environment control, bird comfort

Effective environment control is a function of housing, involving insulation and ventilation. In addition, however, consideration for the comfort and health of the flock involves some special management, particularly when the housing falls short of good principles of environment control.

The flock should be given protection from extremes of temperature or from sharp changes in temperature. Allowing litter to become excessively damp or ammonia to build up in pens can be stress factors.

Avoiding losses from heat requires extra attention to ventilation and water supply. Normal fan ventilation is often inadequate on unusually hot days. Extra fans moving air inside pens may be helpful. Full use of all windows and doors for ventilation is desirable. Extra waterers conveniently located are important.

Regular observation

There has been some emphasis on the decline of husbandry and the *art* of farming as elements of success. The suggestion is that with increasing specialization and mass production methods, technical skills, science, and business knowledge have replaced husbandry. They are important, increasingly so, but they should supplement, not replace, husbandry. Very often a poultryman needs

Remodeled barns that limit opportunities for effective environment control and mechanization sometimes provide more satisfactory quarters for rearing pullets than for housing the laying flock.



to recognize trouble before it develops seriously or at an early stage in order to minimize the effect of a disease outbreak or of stress situations that can be checked. The poultryman who regards his birds as so many production machines is the man who forgets to watch their progress and fails to see trouble coming until it is too late to apply his science and technical skill for maximum benefit.

Sanitation

Sanitation has graduated from the broom and bucket-of-lye-water stage on most poultry farms, but the principles have not changed. The broom and bucket have been exchanged for power cleaners and sprayers; sanitation must be largely mechanical, and to a degree is relative rather than absolute. But the necessity for preventing, reducing, or eliminating infection or sources of infection is, if anything, greater than ever. Few if any of our many highly improved techniques of disease prevention and control are perfect. Practical sanitation is just as important as ever.

Control of disease and parasites

Even with good practical sanitation, problems with diseases and parasites do occur. The tools for controlling them are improved and should be used with judgment. Too much dependence on vaccines, feed additives, and remedies can be expensive.

Many New York poultrymen routinely vaccinate for infectious bronchitis, Newcastle, and fowlpox. More, but not necessarily all, should. Every pullet grower must use some program for control of coccidiosis. If this consists of a policy of letting resistance build up naturally without use of a coccidiostat, then very careful regard must be given for any stress that may accent a disease build-up. Even if a coccidiostat is used, caution is necessary against a degree of stress that will cause a break in the preventive barrier used. In either case, prompt use of correct treatment procedures is vital. Consult your local county agent, diagnostic laboratory, or veterinarian for recommendations for your locality.

For some disease problems, there are still no reliable preventives or cures except sanitation and good management, which, if applied, are likely to be equally effective in reducing costs for all health problems.

Some, but not all, problems with parasites result from carelessness in allowing populations to build up unnecessarily. For external parasites, lice and mites of

various kinds, there are good treatments which can be used economically and conveniently. Routine treatment on a preventive basis is sound. Control for internal parasites is not the same; good sanitation is a sound preventive. Treatment is sometimes necessary but should not be routine. Treatment should result from diagnosis of a specific problem by a trained pathologist.

Lighting programs

The relationship of light stimulation to the reproductive response is undergoing research that may eventually lead to its use as a tool in a different manner from the traditional one. So far results of research have been conflicting. Many farm trials have been so disappointing that any recommendation for altering the use of natural daylight for the growing pullet needs to be considered carefully. Continuous lighting during the growing period is detrimental.

Delaying maturity

It is well established that by using special feeding programs, and perhaps by using special lighting programs, maturity and date of first egg can be delayed from 10 days to two weeks. It is not well established that any economic gains will result.

Restriction of the amount of feed or the use of excessively low energy levels in the feed will accomplish such delay. When ordinary feed restriction is practiced, the bird eats enough extra during the early laying period to compensate. If a special formula that limits only the energy portion is used some actual feed saving may result, but the extra trouble involved is probably more than the saving is worth. Using very low energy rations to delay maturity has the widest appeal because it is least complicated. Because no restriction is practiced, the birds attempt to satisfy their energy requirements, eating extra feed to get their normal energy nutrients plus enough extra to replace energy used in trying to handle the large volume of low-energy material. The result is distinctly higher feed costs.

Goals for delaying maturity include increasing relative egg size, avoiding problems with prolapsus, and increasing total egg production. Realistic evidence that these goals can be reached is lacking.

Controlling feed waste

It is not likely that anyone can eliminate feed waste entirely in the poultry flock, but it is important that any waste be at the preventable minimum. Much waste goes unnoticed because the feed quickly disappears in the litter.

Well-designed feeders of adequate depth and of the proper size, carefully adjusted mechanical feeders, and exercise of caution in filling hand feeders half full or less should eliminate excessive waste.

Of the management skills involving feeding, none offers more opportunity for high rewards than the elimination of feed waste.

Avoiding losses from cannibalism or picking

Much can be done to avoid losses from cannibalism by allowing adequate floor space, reducing excessive light in the pens, and providing a generally good environment for the birds. A more positive preventive or control measure is the removal of one-half or slightly more of the upper mandible of the beak with an electric debeaker. Debeaking is not always necessary, but there should be no hesitation in using it to check trouble. It can be done at any time and, when well done, will last through a laying year on most of the birds. Most poultrymen prefer to avoid extremes in removing either too little or too much of the beak.

Housing the laying flock

By the time pullets are in 10 percent production, or at about 20 weeks of age, they should be in their laying quarters and should be equipped and managed as a laying flock. For confinement-reared flocks, this should involve only a minor adjustment, particularly if they do not have to be moved at all.

Culling the flock at housing time should be done with some reservation. Birds that clearly lack health and vigor, or are very obvious culls, should be removed. Classifying the birds for their laying potential and doing general culling on this basis is not reliable at this stage and should not be attempted.

Sorting the flock on the basis of stage of maturity may allow the later-maturing birds to develop without interference from the more precocious ones. This practice is desirable if housing or pen facilities permit separation.

Nests should be ready for the flock to discourage them from laying eggs on the floor. Feeding and watering equipment for the laying flock should be in order. Rations should be changed to layer formulas, and the general chore and management routine for the laying flock should be established.

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